

**MSP for VoIP Gateways with Integrated Secure Router**

**GENERAL**

The MSP4000 belongs to a full family of Multi-Service Processors designed to meet the performance, QoS, and security needs of communications equipment used within the customer premise.

The MSP4000 is ideal for designing VoIP Gateways for small businesses, professional telecommuters, and branch offices. The MSP4000 is a highly affordable solution for up to eight ports of derived voice. This Multi-Service Processor provides a migration path from legacy IAD voice services using time division multiplexing over T1 services to next generation voice over broadband services.

The MSP4000 is also designed to meet the performance requirements

of firewall applications and provides an additional Ethernet MAC for a dedicated DMZ port. An integrated encryption engine enables high-performance VPN services expected by telecommuters and remote offices.

To reduce time-to-market, PMC-Sierra offers comprehensive support for the MSP4000, including evaluation boards, software, application engineering support, training, and documentation that together accelerate the product development process. In addition, the MSP4000 supports Linux, VxWorks, or custom operating systems.

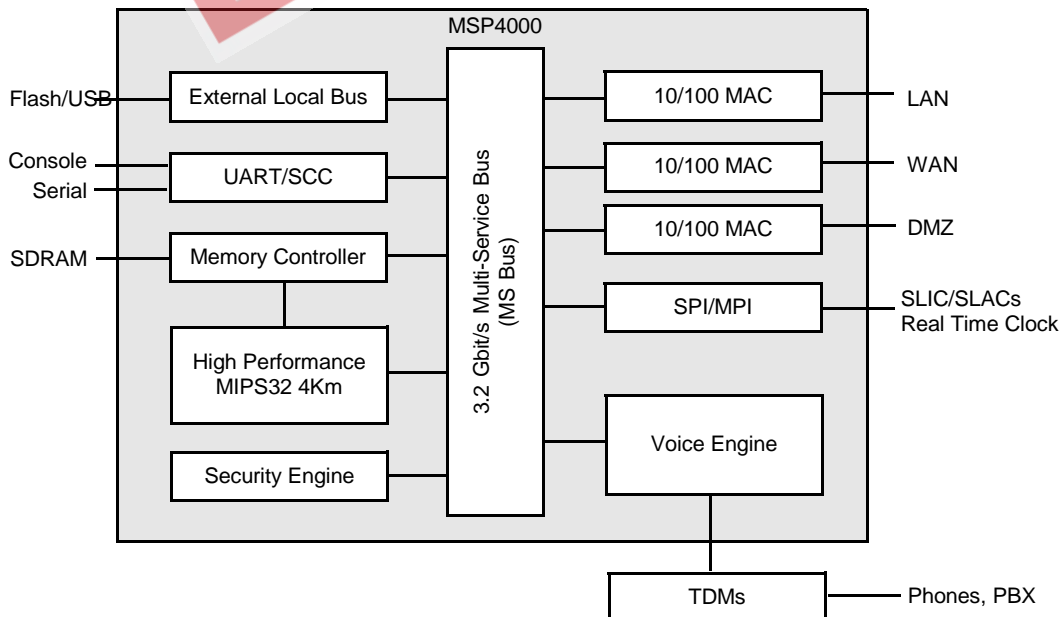
**ADVANTAGES**

- Single platform for both data and voice solutions
- Support for high performance VPNs
- Significant cost reduction through integration of multiple processors and discrete parts on a single chip
- Support for VxWorks and Linux

**APPLICATIONS**

- VoIP Gateway
- IADs

**BLOCK DIAGRAM**



# MSP4000 Multi-Service Processor

## MSP for VoIP Gateways with Integrated Secure Router

### **ELECTRICAL**

- 350 pin PBGA
- Vcc 3.3V I/O, 1.8V core
- Power consumption 1.5W

### **SYSTEM PROCESSOR**

- High performance MIPS32 4Km processor at 150 MHz
- 16 KB instruction cache, 16 KB data cache

### **ULTRAFAST MULTI-SERVICE BUS (MS BUS)**

- Peak bandwidth of 3.2 Gbit/s
- True parallel processing
- Prioritized access

### **VOICE ENGINE**

- LSI ZSP processor at 100 MHz
- 80 KB instruction, 64 KB data on-chip SRAM
- ADPCM hardware accelerator

### **TELEPHONY INTERFACE**

- Dual TDM interfaces each capable of 128 full duplex channels
- Adaptive or WAN reference clocking
- Glueless interface to SLACs/T1/E1 framers
- Glueless interface to SPI/MPI

### **LAN INTERFACE**

- Three Independent 10/100 Ethernet MACs
- Supports VLAN tagging and DMZ

### **SECURITY ENGINE**

- Hardware accelerator for DES, 3DES, MD5, and SHA-1
- 32 Bit true random number generator
- IPSec compliant

### **SYSTEM CONTROL**

- Eight interrupt inputs
- GPIOs
- MIPS timer, two system timers, and watchdog timer
- Block copy engine
- Flexible external local bus interface
  - Up to 12 MBit/s data throughput

### **MISCELLANEOUS INTERFACES**

- UART
- SCC
- SPI/MPI
- Two-wire serial

### **MEMORY CONTROLLER**

- Glueless interface to 128 MB of SDRAM
- Glueless interface to 32 MB of flash

### **VOICE PROCESSING**

- G.711, G.726, G.729a/b, G.723.1
- G.168 echo cancellers
- G.711-Fax, fax/modem tone detection
- T.38 Fax relay
- DTMF generation/detection
- Call progress generation
- Caller ID

- Voice activity detection and comfort noise
- Channel cross-switch and conferencing
- Gain control
- Jitter buffer
- Adaptive clocking

### **SOFTWARE**

- APIs: Voice engine, MACs, Security engine, and Block Copy
- Sample drivers to support SLIC/SLAC on the EVM board

### **CERTIFICATIONS**

- NIST certification for security algorithms (FIPS 46-3, 81, and 180-1)

### **DEVELOPMENT TOOLS**

- Support for Linux and VxWorks
- Evaluation boards

### **THIRD PARTY SUPPORT**

- Security Applications
  - Ashley Laurent - Broadway Engine
  - INTOTO - iGateway
  - SofaWare Technologies - Safe@Office
- Voice Processing
  - GIPS - Global IP Sound - NetEq
  - RADVISION - H.323, SIP, MGCP
- EJTAG Debuggers
  - EPI - MAJIC probe
  - WindRiver - visionICE II

Head Office:  
PMC-Sierra, Inc.  
8555 Baxter Place  
Burnaby, B.C. V5A 4V7  
Canada  
Tel: 1.604.415.6000  
Fax: 1.604.415.6200

To order documentation,  
send email to:  
document@pmc-sierra.com  
or contact the head office,  
Attn: Document Coordinator

All product documentation is available  
on our web site at:  
<http://www.pmc-sierra.com>  
For corporate information,  
send email to:  
info@pmc-sierra.com

PMC-2041690 (R2)  
© Copyright PMC-Sierra, Inc. 2004. All  
rights reserved.

For a complete list of PMC-Sierra's  
trademarks and registered trademarks,  
visit: <http://www.pmc-sierra.com/legal/>